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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,371	02/09/2004	Ivan Tashev	MCS-063-03 (304217.01)	9761
27662 7590 12/27/2007 MICROSOFT CORPORATION C/O LYON & HARR, LLP 300 ESPLANADE DRIVE SUITE 800 OXNARD, CA 93036			EXAMINER LEE, PING	
			ART UNIT 2615	PAPER NUMBER
			MAIL DATE 12/27/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/775,371	Applicant(s) TASHEV ET AL.	
	Examiner Ping Lee	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-13 and 24-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The newly amended claim 1 and 24 state that "said external computing device performing all audio processing of the captured audio signal", however, the specification and the drawing as originally fail to provide support for this newly added limitation. The self calibration unit uses the captured audio signal to perform the measurement and calibration. Therefore, the external computing device does not perform all audio processing of the captured audio signal as specified in claims 1 and 24.

### ***Claim Rejections - 35 USC § 102***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1, 2, 7, 8, 14-18, 21, 22, 26, 27, 29 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Arndt et al (hereafter Arndt) (US006954535B1).

In view of new matter rejection indicated above, claims 1-13 and 24-30 have been examined based on the original claims.

Regarding claims 1, 8, 14, 16, 17, 24, 26, 29 and 30, Arndt discloses a microphone array (1), comprising:

an array of at least one microphone (2, 3);

a memory (21) contained within the array, said memory including parametric information which defines operational characteristics and configuration of the array (col. 4, lines 16-19);

an array interface for connecting the array to an external computing device (9);

and

wherein the parametric information included in the memory is reported to the external computing device via the array interface upon connection of the array to the external computing device. The parametric information stored in the memory is being reported to the external computing device through the filter outputs.

As shown in Fig. 2, the external computing device (9) is used for processing audio signals captured by the microphone array (18,20) and transmitted to the external computing device (9).

Regarding claim 2, Arndt shows that memory is a rewritable-type memory.

Regarding claims 7, 18 and 27, the claimed "audio capture characteristics of the microphone array" reads on different directional characteristics as disclosed in Arndt.

Regarding claim 15, Arndt shows the magnitude and phase gains for each microphone in the array is automatically determined (col. 2, lines 55-58).

Regarding claim 21, by sitting in a testing room, the claimed "a manual user calibration request" is inherently performed.

Regarding claim 22, by sitting in a testing room with the unit 9 control the measurement, the claimed "an external calibration request" is inherently performed.

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 9, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt in view of Kanazawa et al (hereafter Kanazawa) (US006032115A).

Regarding claim 9, Arndt fails to disclose whether the measuring and evaluation unit processing signal in analog or digital domain. One skilled in the art would be motivated to search any related art that performs the calculation efficiently. Kanazawa teaches using A/D converter to convert the microphone signal and performs frequency analysis afterward. Thus, it would have been obvious to one of ordinary skill in the art to modify Arndt of by performing the signal analysis method as taught in Kanazawa in order to improve the frequency response of the microphone array.

Regarding claims 19 and 20, Kanazawa teaches the separate audio signal for each microphone (step s2, speech data #a, #b).

7. Claims 13 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt in view of Hsieh et al (hereafter Hsieh) (US 20050254673A1).

Regarding claims 13 and 23, Arndt fails to show the microphones are MEMS-type microphones. Arndt teaches a general hearing aid with a general microphone

array. One skilled in the art would have expected that any specific type of microphone that could be used in Arndt's hearing aid without generating any unexpected result. Hsieh teaches a MEMS-type of microphone and suggests that it could be used for hearing aid. Thus, it would have been obvious to one of ordinary skill in the art to modify Arndt in view of Hsieh by using MEMS-type microphone in order to improve the microphone performance.

8. Claims 3-5, 10-12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt in view of Csermak et al (hereafter Csermak) (US 20040202333A1).

Regarding claims 3, 4, 10-12 and 25, Arndt fails to show the array comprising a self-calibration system. Arndt teaches that the calibration is performed external from the microphone array in a testing facility. However, Csermak teaches that a hearing aid should have self-diagnostics system for performing evaluation at any time. Thus, it would have been obvious to one of ordinary skill in the art to modify Arndt in view of Csermak by performing self-evaluation in order to identify a potential microphones malfunction without requiring the professional help.

Regarding claim 5, although not explicitly shown, preamplifier is inherently included and coupled to the microphone to provide signal in proper level.

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 1-13 and 24-30 have been considered but are moot in view of the new ground(s) of rejection.

10. Applicant's arguments filed 9/28/07 have been fully considered but they are not persuasive.

In response to applicant's argument that Arndt fails to show that the external computing device is used for processing audio signals, applicant is advised to study Fig.

2. It shows that the signals from microphones are transmitted to external computing device to be processed. Therefore, Arndt discloses the claimed invention.

### ***Conclusion***

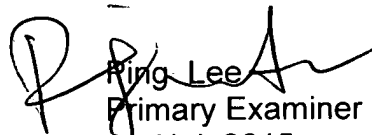
11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Ping Lee  
Primary Examiner  
Art Unit 2615

pwl